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**for the**

**DISCRIMINATING**

Brother Industries, Ltd. since 1914 has manufactured precision made sewing machines, typewriters, knitting machines, hair dryers, electric pencil sharpeners, and other small and major appliances. Each product is produced with meticulous care and skill. with durability tests and engineering to insure long lasting use.

**BROTHER INTERNATIONAL CORPORATION**

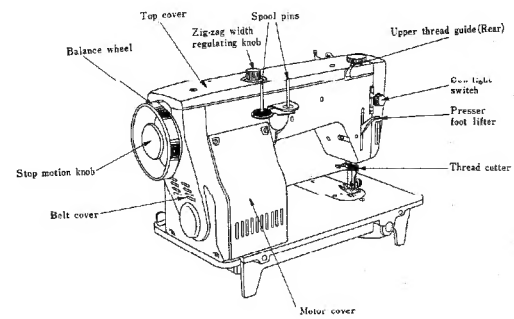
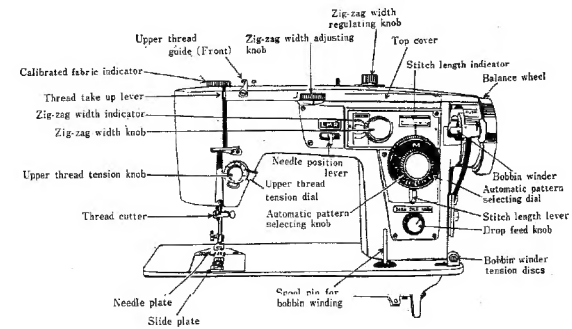
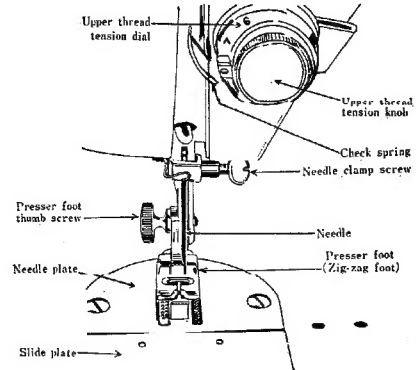


## INDEX

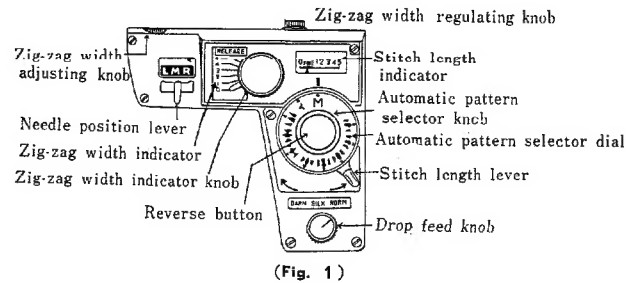
I	KNOW THE PARTS OF YOUR SEWING MACHINE	
	WITH AUTOMATIC STITCH ZIG-ZAG CAMS.....	1
	1. Principal Parts.....	3
II	HOW TO OPERATE YOUR SEWING MACHINE .....	4
	1. Stitch Length and Reverse Sewing .....	4
	(a) Stitch length lever .....	4
	(b) Push button for reverse sewing.....	4
	2. Needle Position and Zig-zag Width .....	5
	(a) The needle position lever .....	5
	(b) Zig-zag width knob .....	5
	(c) Zig-zag width regulating knob .....	5
	3. Automatic Pattern Selection .....	5
	4. Zig-zag Width Adjusting Knob .....	6
	5. Pressure and Feeding .....	6
	(a) Calibrated fabric indicator .....	6
	(b) Drop feed .....	7
III	PREPARATION FOR SEWING.....	7
	1. To Change Presser Foot.....	7
	2. To Change Needle Plate.....	7
	3. To Change Needle.....	7
	4. To Change Sew-Light Bulb .....	8
	5. Threading and Adjusting Tensions .....	8
	(a) Lower thread .....	8
	(b) Upper thread .....	10
	6. Twin Needle.....	12
IV	BASIC KNOWLEDGE OF SEWING.....	12
	1. Needle and Thread Sizes .....	12
	2. Initial Stitch.....	12
	3. To Change Stitching Direction .....	13
	(a) Using single needle .....	13
	(b) Using twin needle.....	13
	4. Back Tacking .....	13
	(a) At the initial sewing .....	13
	(b) At the final sewing .....	13
	5. Stitch of Easily Stretchable Cloth .....	13
	6. Stitching of Very Thin Cloth .....	13
	7. To Remove the Work .....	13
	8. Suggestions for Back Tacking.....	14
V	TO MAKE VARIOUS STITCHES.....	14
	1. Basic Stitches .....	14
	(a) Straight stitch.....	14
	(b) Simple zig-zag stitch (Ordinary zig-zag stitch).....	14
	(c) Satin stitch .....	15
	2. Decorative Stitches .....	15
	(a) Basic Automatic patterns .....	15
	(b) Automatic patterns (Needle position) .....	17
	3. Manual Pattern Sewing .....	18
	(a) Manual pattern sewing (Needle position) .....	18
	(b) Manual pattern sewing (Zig-zag width).....	19
	(c) Manual pattern sewing (Stitch length) .....	20
VI	ATTACHMENTS .....	21
	1. Applications of Straight Stitch Foot of Zig-zag Foot.....	21
	(a) To baste.....	21
	(b) Gathering .....	21
	(c) Darning .....	22
	2. Zig-zag Foot.....	23
	(a) Sew on buttons, snaps and hooks.....	23
	(b) To make button holes.....	24

(c) To attach lace.....	25
(d) Mending .....	25
3. Zipper Foot .....	26
4. Felling Foot .....	27
5. Narrow Hemmer.....	27
(a) Narrow hemmer on straight stitch .....	27
(b) Narrow hemmer on zig-zag stitch .....	28
(c) To make shell stitch .....	28
(d) To hem lace .....	28
6. Cloth Guide .....	29
(a) To make overlock stitch .....	29
(b) To make blind stitched hem .....	29
7. Cording Foot.....	30
8. Embroidering .....	30
(a) Applique.....	30
(b) Embroidering, using embroidering hoop .....	31
(c) Sand stitch .....	32
(d) Monogramming .....	32
VI SUGGESTIONS FOR BETTER SEWING .....	33
VII MAINTENANCE AND OILING OF MACHINE.....	34
1. Cleaning .....	34
(a) To take out the hook .....	34
(b) Cleaning of shuttle race body .....	34
2. Oiling .....	35
How to put sewing head into console cabinet or portable case .....	36

I KNOW THE PARTS OF YOUR SEWING MACHINE  
WITH AUTOMATIC STITCH ZIG-ZAG CAMS



## I HOW TO OPERATE YOUR SEWING MACHINE



### 1. Stitch Length and Reverse Sewing

#### (a) Stitch length lever

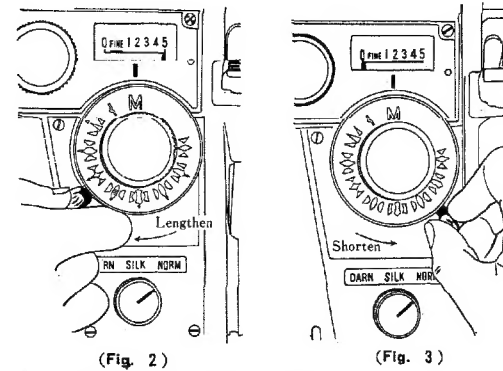
The stitch length is regulated by turning the stitch length lever. Numerals on the stitch length indicator represent the stitch length.

※To lengthen stitch length, move lever to the left to larger number on the stitch length indicator.

※To shorten stitch length, move lever to the right to smaller number on the stitch length indicator.

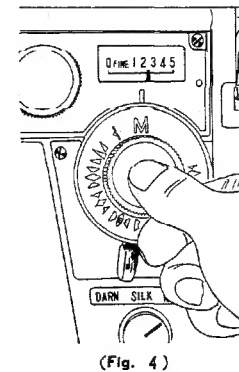
※The "0" on the indicator represents that the material is not fed.

※The FINE area on the indicator is for making a Satin Stitch (a close zig zag stitch).



#### (b) Push button for reverse sewing

To sew reverse, push reverse button as far as it will go. Reverse sewing is used for back tacking and making buttonholes.



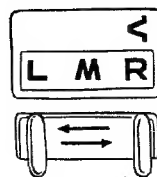
## 2. Needle Position and Zig-zag Width

### (a) The needle position lever

You can change the needle position freely by moving the needle position lever.

- I. Needle position : L (Left)
- II. Needle position : M (Middle)
- III. Needle position : R (Right)

**NOTE :** Do not move needle position lever while the needle is in the material.



(Fig. 5)

### (b) Zig-zag width knob

You can change zig-zag width as you desire by turning the zig-zag width knob.

※Set the automatic pattern selecting dial to M.

※Turn zig-zag width regulating knob counter-clockwise as far as it will go.

※Set the zig zag width adjusting knob to 5.

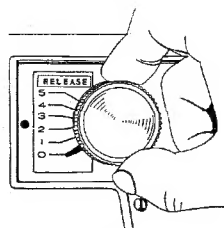
※Turn zig-zag width knob clockwise to increase zig-zag width.

※Numerals from 0 to 5 on the indicator indicate the width of zig-zag stitch.

※Zig-zag width knob returns automatically, releasing your hand.

**NOTE :** To make the straight stitch, set knob to "O" and the pattern selecting dial to M.

When you select an automatic pattern, keep the zig-zag width knob in the RELEASE area with your left hand and choose pattern you desire by turning the automatic pattern selecting knob with your right hand.



(Fig. 6)

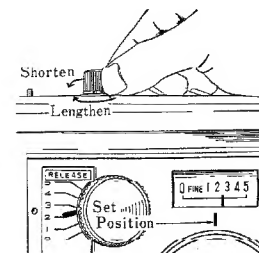
### (c) Zig-zag width regulating knob

The zig-zag width regulating knob is used for making the definite zig-zag width stitch.

※Set pattern selecting dial to M.

※Try to turn zig-zag width regulating knob and you will find that the zig-zag width indicator moves.

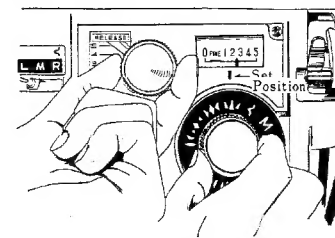
※Thus choose zig-zag width you desire.



(Fig. 7)

## 3. Automatic Pattern Selection

Your sewing machine with automatic stitch zig-zag cams can make various beautiful patterns easily with simple handling.



(Fig. 8)

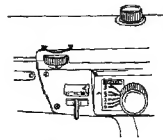
※Hold zig-zag width knob with your left hand and turn clockwise it to the RELEASE area.

※While holding this knob in this position, set an automatic pattern you desire to set position line by turning automatic pattern selecting knob with your right hand.

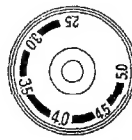
#### 4. Zig-zag Width Adjusting Knob

Stitch width adjusting knob regulates the zig-zag width which is set by the zig-zag width indicator.

By turning this knob from 5 to 2.5, the shorter zig-zag width can be obtained. No adjustment is made at 5 and the half width can be obtained at 2.5 as the shortest.

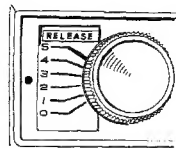


(Fig. 9)



(Fig. 10)

- i. Using the twin needle, manual sewing
  - ※Set zig-zag width indicator to 5 by turning zig-zag width regulating knob.
  - ※Set zig-zag width adjusting knob to 2.5. (It is the widest stitch, using the twin needle.)



(Fig. 11)

**NOTE:** If you set the knob to larger number than 2.5, the twin needle may either bend or break. Therefore, when you use twin needle, it is impossible to enlarge the twin needle width than this width but you can reduce the width by turning zig-zag width regulating knob counter-clockwise.



(Fig. 12)

- ii. Using the twin needle, automatic pattern sewing
  - ※Select the automatic pattern you desire.
  - ※Fix zig-zag width knob to 2.5.
  - ※Commence to sew.

- iii. Using the single needle, automatic pattern sewing

When you use the single needle, you can change the width freely 2.5 and 5 by turning the knob.

- iv. Making buttonholes

When you make buttonholes, this knob is very useful.

Accordingly, you can change the width of buttonhole by turning the knob.

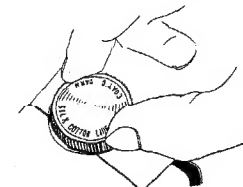
#### 5. Pressure and Feeding

The material is fed automatically by harmonious working of pressure and feed dog. Therefore, it is necessary to adjust both pressure and height of feed dog according to the material you are sewing.

- (a) Calibrated fabric indicator

Lower presser bar before making adjustments.

To obtain the proper pressure, simply turn calibrated fabric indicator to the type of fabric you are sewing.



(Fig. 13)

- Sewing heavier fabric, increase pressure by turning the indicator clockwise.
- Sewing lighter fabric, decrease pressure by turning the indicator counter-clockwise.

For darning, embroidering or monogramming, set the indicator to DARN which is the lightest pressure.

Increase



(Fig. 14)

Decrease



(Fig. 15)



(b) Drop feed

To obtain the proper height of feed dog, turn drop feed knob according to the material you are sewing.

(NORM) for sewing heavy and general materials

(SILK) for sewing silk and light materials

(DARN) for darning



(Fig. 16)

## II PREPARATION FOR SEWING

### 1. To Change Presser Foot

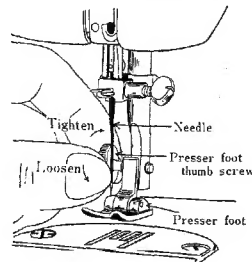
※Raise needle to its highest position by turning balance wheel towards you.

※Raise presser foot by lifting presser foot lifter.

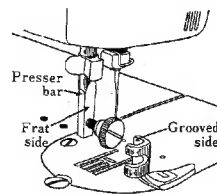
※Loosen presser foot thumb screw and remove foot.

※Place grooved side of the new presser foot against the flat of the presser bar.

※Push foot up and tighten thumb screw.



(Fig. 17)



(Fig. 18)

### 2. To Change Needle Plate

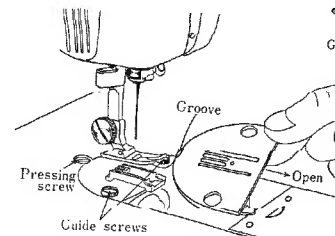
※Raise needle to its highest position.

※Raise presser foot.

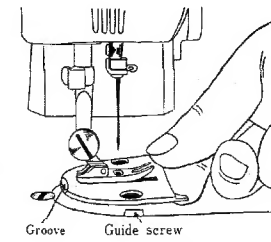
※Draw slide plate out towards you.

※Using thumb and forefinger, lift out needle plate.

※Insert groove of new needle plate under the pressing screw.



(Fig. 20)



(Fig. 19)

※Fit holes of needle plate to guide screws and press it down.

※Close slide plate.

NOTE: It is unnecessary to loosen guide screws.

### 3. To Change Needle

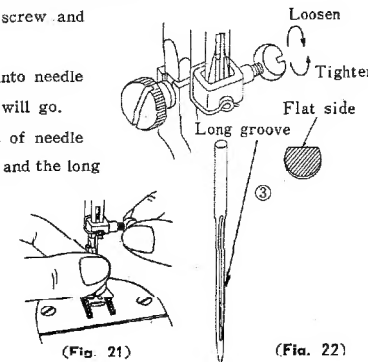
※Raise needle bar to its highest position.

※Loosen needle clamp screw and remove old needle.

※Insert new needle up into needle clamp hole as far as it will go.

※Make sure the flat side of needle faces towards the back and the long groove towards you.

※Tighten needle clamp screw securely.

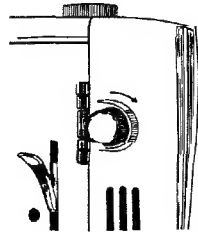


(Fig. 21)

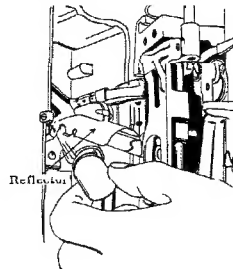
(Fig. 22)

#### 4. To Change Sew-Light Bulb

- The sew-light switch is located on the rear side of the front cover.
- ※By turning the switch clockwise, you can turn the light on or off as you wish.
  - ※Open front cover and lift up the reflector.
  - ※Grasp bulb with thumb and forefinger, and remove it by turning bulb clockwise.
  - ※Now replace a new bulb, push down reflector and close front cover.



(Fig. 23)



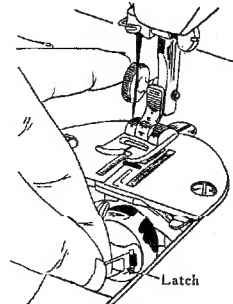
(Fig. 24)

#### 5. Threading and Adjusting Tension

##### (a) Lower thread

- i To remove the bobbin case
  - ※Raise needle to its highest position by turning balance wheel towards you.
  - ※Pull out slide plate.
  - ※With thumb and forefinger, open the latch and remove bobbin case.

**NOTE:** While opening the latch, the bobbin will not drop out, if you turn the bobbin case downwards.



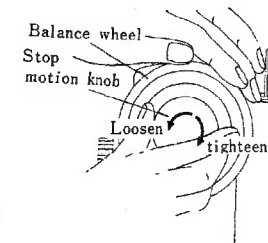
(Fig. 25)

##### ii To remove the bobbin from bobbin case.

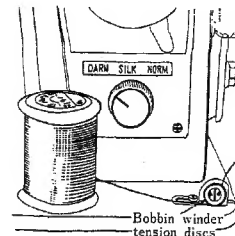
- ※Release latch of bobbin case.
- ※Turn bobbin case downwards and the bobbin will drop out easily.

##### iii Winding the bobbin

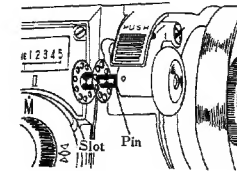
- ※Hold balance wheel with your left hand and turn stop-motion with your right hand towards you.
- ※Place a spool of thread on the spool pin.



(Fig. 26)



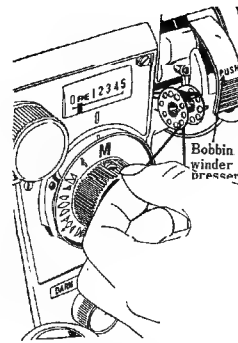
(Fig. 27)



(Fig. 28)

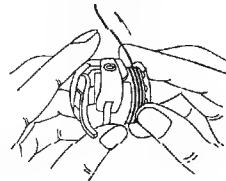
- ※Take thread and pass it through the bobbin winder tension discs from beneath.
- ※Place an empty bobbin on the bobbin winder stud.
- ※Make sure the little slot in the bobbin engages the pin on the stud.
- ※Pass an inch of thread through hole of bobbin from inside to left.
- ※Push bobbin winder presser until you hear a "click" sound.
- ※Turn balance wheel towards you a few times and start to wind gently.

- ※When the bobbin winder is fully wound it will automatically spring back and stop.
- ※Break the thread and remove the bobbin.
- ※Hold balance wheel with your left hand and turn stop motion knob with your right hand away from you until it is quite tight.

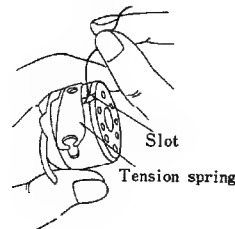


(Fig. 29)

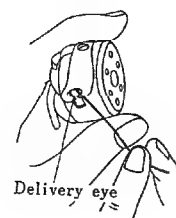
- iv To thread the bobbin case
- ※Insert wound bobbin into bobbin case.
  - ※Unwind about 3 or 4 inches of thread from the bobbin.
  - ※Pull trailing thread into slot.
  - ※Pull thread to the left under the tension spring until thread enters into delivery eye.



(Fig. 30)



(Fig. 31)

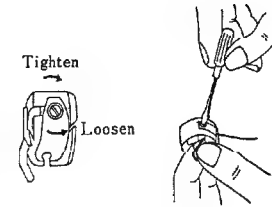


(Fig. 32)

- v To adjust the bobbin tension

The bobbin tension has been already adjusted for general use at the factory but when sewing extremely thin or heavy material, it is necessary to adjust the bobbin tension.

In other words, if a perfect stitch can not be obtained by adjusting the upper thread tension only, adjust bobbin tension.



(Fig. 33)

- (A) To increase bobbin tension, tighten bobbin tension adjusting screw by turning it clockwise
- (B) To decrease bobbin thread tension, loosen bobbin tension adjusting screw by turning it counter-clockwise.

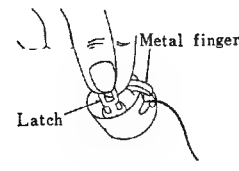
- vi To replace the bobbin case

Hold bobbin case latch with your left hand, with the metal finger of the bobbin case pointing up and bit it into the notch at the top of the shuttle race.

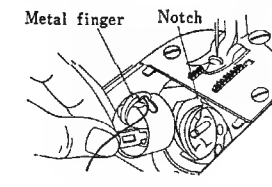
- ※Release latch and press bobbin case back until the latch catches and holds the bobbin case in its proper position.

- ※Close slide plate.

**NOTE :** The thread drawn out from the bobbin case is to be left free.



(Fig. 34)

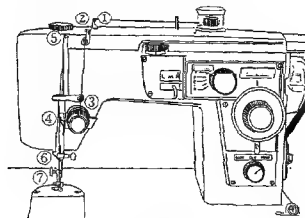


(Fig. 35)

(b) Upper thread

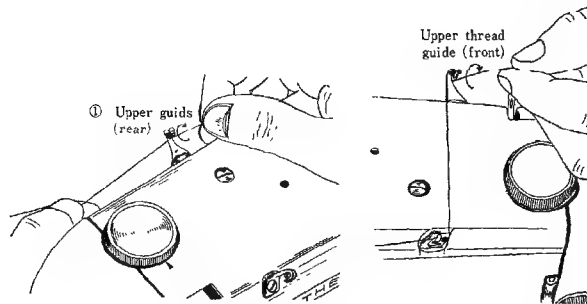
i To thread

- ※Raise thread take up lever to its highest position by turning balance wheel towards you.
- ※Raise presser bar by lifting presser foot lifter.
- ※Place spool of thread on the spool pin on the arm.
- ※Pass thread through as shown in figures.



(Fig. 36)

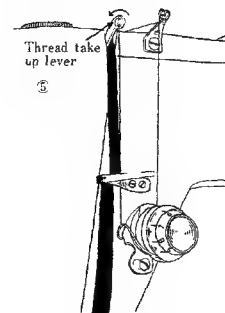
①, ② Pass thread through the upper thread guides (rear and front)



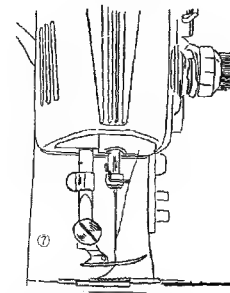
(Fig. 37)

(Fig. 38)

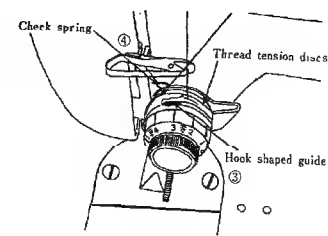
- ※Down between the upper thread tension discs from right to left.
- And bring thread up and fall it into the hook shaped guide.



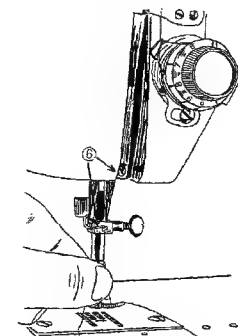
(Fig. 40)



(Fig. 42)



(Fig. 39)

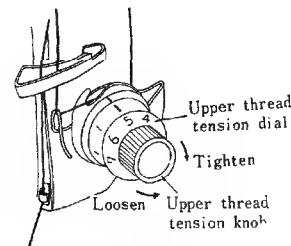


(Fig. 41)

## ii Upper thread tension control

To regulate the tension, merely turn the dial. If it is turned right, the tension will be tightened.

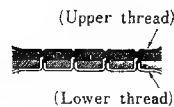
The higher the number, the tighter the tension. Tension will be loosened by turning the dial to the left.



(Fig. 43)

### (1) Perfect stitching

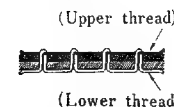
The tension on the upper and lower thread should be equal, and just sufficiently strong to lock both threads in the center of the work.



(Fig. 44)

### (2) Incorrect stitching

If the upper thread tension is too tight, or lower thread tension is too loose, the upper thread will lie straight along the upper surface of the material, making an imperfect stitch as shown in figure.

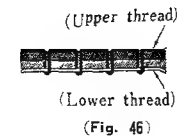


(Fig. 45)

To correct this stitch, turn the upper thread tension knob to lower number.

### (3) Incorrect stitching

If the upper thread tension is too loose, or lower thread tension is too tight, the lower thread will lie straight along the under side of the material, making an imperfect stitch as shown in figure.



(Fig. 46)

To correct this stitch, turn the knob to the higher number on the upper thread dial.

**NOTE:** Before making upper thread tension adjustments, lower presser foot.

### iii. To Pull up Lower Thread

※ Raise presser foot by lifting presser foot lifter.

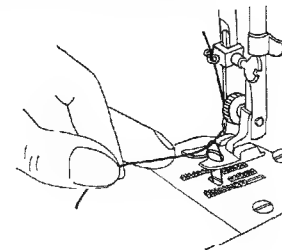
※ Raise needle to its highest position.

※ With your left hand, hold end of the upper thread.

※ With your right hand, turn balance wheel toward you until the needle moves down and up again to its highest position, thus catching the lower thread.

※ Pull thread you are holding gently and it will bring up the lower thread.

※ Lay both ends of the thread each under the presser foot.



(Fig. 47)



(Fig. 48)

#### 6. Twin Needle

You make exquisite two-color embroidery, and with infinite stitch variety. You'll make the most beautiful and unique designs imaginable.

※To insert the twin needle, follow instructions for single needle.

※To thread upper thread, follow instructions for single needle threading and thread each needle separately.

※You can make any stitch or pattern with twin needle but remember to set the zig-zag width adjusting knob to 2.5.

### IV BASIC KNOWLEDGE OF SEWING

#### 1. Needle and Thread Sizes

Needles	Threads	Cloth	Remarks
9	Silk & 100 Cotton	Thin Linen Silk	Thread should always be thinner than the needle eye. When you must use heavier thread than those shown here, select a thicker needle.
11	80, 100 Cotton	Calico Shirting	
14	50, 60 Cotton	Cotton Poplin	
16	30, 40 Cotton	Wool Suiting	

#### 2. Initial Stitch

※Raise needle to its highest position.

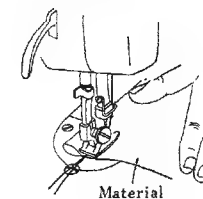
※The upper and lower threads are in order brought out from under the presser foot to the opposite side by 5 inches or so.

※The cloth is placed under the presser foot while the needle is being lifted.

※The balance wheel is turned towards you and the needle is pierced into the material.

※Lower presser foot down with your left hand.

※Commence to sew.



(Fig. 49)

**NOTE :** The material will feed by itself, so do not pull the material. By pulling, you may bend or break the needle.

Also never move the zig-zag width knob or needle position lever when the machine is stopped and the needle is in the material.

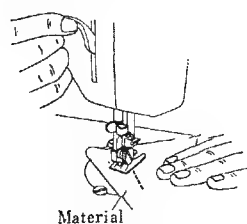
### 3. To Change Stitching Direction

(a) Using single needle

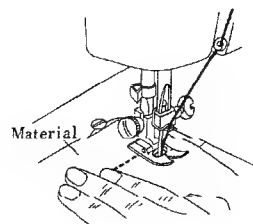
※Stop your machine at the turning point while the needle in the material.

※Lift presser foot and turn material to the direction you wish.

※Lower presser foot again and commence to sew.



(Fig. 50)



(Fig. 51)

(b) Using twin needle

※Take out the needle from the material at the turning point without fail.

※Lift presser foot.

※Change direction and bring down the presser foot again and commence to sew.

### 4. Back Tacking

(a) At the initial sewing

#### IN THE STRAIGHT STITCH

Pushing reverse button, make a backward stitch about one half inch from the edge of the material.

When you reach the edge of the material, release the button and continue to sew forwards.

(b) At the final sewing

After you finish sewing up, push reverse button and make a backward stitch about one half inch.

### IN THE ZIG-ZAG OR TWIN NEEDLE STITCH

Set stitch width to 0 and stitch length to a low position both at the beginning and at the end of sewing.

Make 5 to 6 stitches.

### 5. Stitch of Easily Stretchable Cloth

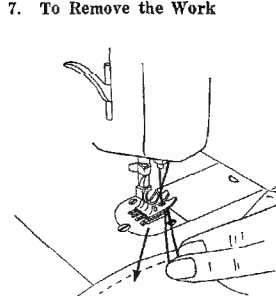
Loosen thread tension properly when stitching stretchable cloth such as flannel or diagonally cut cloth.

Otherwise the thread may break when the cloth is stretched.

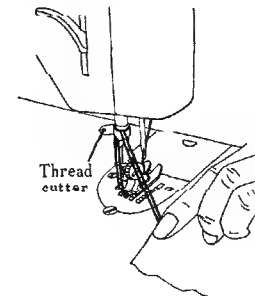
### 6. Stitching of Very Thin Cloth

Very thin cloth is liable to become creasy or the thread gets into the cloth so that it is very hard to stitch. Then stitch together with a thin paper that will make the stitching much more easy. After it is finished, break the paper away from the cloth. It will perfectly be stitched up without any damage will on the cloth.

### 7. To Remove the Work



(Fig. 52)



(Fig. 53)

※Stop the machine.

※Raise needle to its highest position by slowly turning the balance wheel towards you.

※Lift presser foot and pull out the material gently to the left opposite side diagonally.

※Cut upper and lower threads by the thread cutter on the presser bar.

※The thread cutter can hold the upper and lower threads not to run out the needle when making next stitch.

## 8. Suggestions for Back Tacking

※Make sure not to stitch over the edge of material.

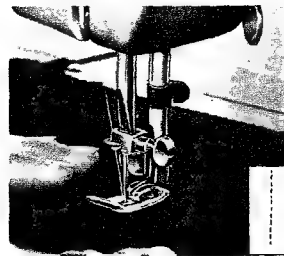
※Stop the machine putting your hand on the balance wheel just before the stitching is over. This will avoid entanglement of threads.

※If the presser foot is raised, the thread tension disc is loosened and the thread is pulled out easily.

## V TO MAKE VARIOUS STITCHES

### 1. Basic Stitches

#### (a) Straight stitch



(Fig. 54)

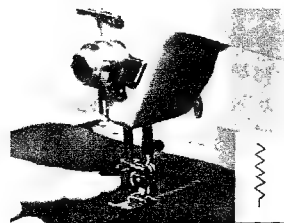
Set your machine as shown in chart

	PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
SINGLE NEEDLE	For Zig-zag or Straight		M	As desired	0	5.0	M	NORM	According to the material
TWIN NEEDLE	For Zig-zag		M	As desired	0	5.0	M	NORM	According to the material

NOTE: Make sure not to move levers and knobs while needle is being in the material.

When you sew extremely light material in straight stitch, use straight foot and straight needle plate.

#### (b) Simple zig-zag stitch (Ordinary zig-zag stitch)



(Fig. 55)

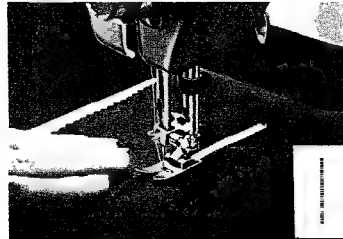
Set your machine as shown in chart

	PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
SINGLE NEEDLE	For Zig-zag		M	As desired	As desired	5.0	M	NORM	According to the material
TWIN NEEDLE	For Zig-zag		M	As desired	As desired	2.5	M	NORM	According to the material

NOTE: When you use twin needle, make sure the zig-zag width adjusting knob be set at 2.5.



(c) Satin stitch



(Fig. 56)

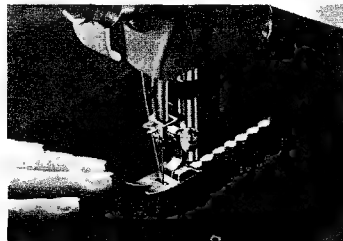
Set your machine as shown in chart

	PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
SINGLE NEEDLE	For Zig-zag		M	FINE	As desired	5.0	M	NORM	According to the material
TWIN NEEDLE	For Zig-zag		M	FINE	As desired	9.0	M	3/4 NORM	According to the material

**NOTE:** First, set stitch length lever to right side of FINE area.  
If it is coarse, move stitch length lever to the right.

## 2. Decorative Stitches

(a) Basic Automatic patterns

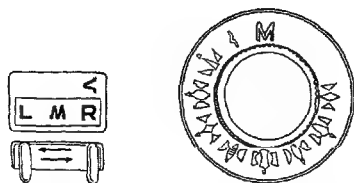


(Fig. 57)

Set your machine as shown in chart

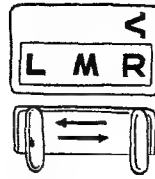
	PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
SINGLE NEEDLE	For Zig-zag		As desired except M	FINE		2.5 5.0	L. M. R.	NORM	According to the material
TWIN NEEDLE	For Zig-zag		As desired except M	FINE		2.5	L. M. R.	NORM	According to the material

**NOTE:** The chart in next page provides a simple visual means for you to see the pattern of stitch: Select it and set your machine to sew it for you automatically. To start from very beginning of the pattern, set stitch width indicator to 0 by turning balance wheel toward you.



Selector Dial											
Needle Position		R	L M R	L M R	L M R	L M R	L M R	L M R	L M R	L M R	L M R
Single Needle Pattern											
Twin Needle Pattern											
	Manual Sewing	Blind Stitch	AUTOMATIC PATTERN								

b) Automatic patterns (Needle Positions)



You can make large variety of ornamental stitches by controlling the needle position lever only. Move it from left to right or right to left, timing yourself by watching the zig-zag width indicator.

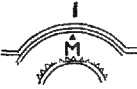

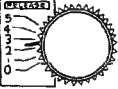




HOW TO MOVE NEEDLE POSITION LEVER																		
	Single Needle	Twin Needle	Single Needle	Twin Needle	Single Needle	Twin Needle	Single Needle	Twin Needle	Single Needle	Twin Needle	Single Needle	Twin Needle	Single Needle	Twin Needle	Single Needle	Twin Needle	Single Needle	Twin Needle
When the indicator reaches to O, change the lever from L (R) to R (L).																		
When the indicator reaches to 5, change the lever from L (R) to R (L).																		
Change the lever from L (R) to R (L) when the indicator reaches 5, and from R (L) to L (R) when the indicator goes back to O.																		




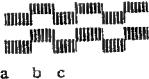


### 3. Manual Pattern Sewing

You can make fancy stitches infinitely, by operating the needle position lever, the zig zag width knob and the stitch length lever.

(a) Manual pattern sewing (Needle position)



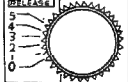




Set your machine as shown in chart





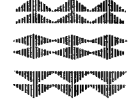



	PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
									
SINGLE NEEDLE	For Zig-zag		M	FINE	2~3	5.0	See below table	NORM	According to the material
TWIN NEEDLE	For Zig-zag		M	FINE	2~3	2.5	See below table	NORM	According to the material

	EXAMPLE		
HOW TO MOVE THE NEEDLE POSITION LEVER	<ol style="list-style-type: none"> <li>1. Set needle position lever to L.</li> <li>2. At b position, shift lever from L to R.</li> <li>3. At c position, shift lever from R to L.</li> <li>4. Repeat these steps.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set lever to L.</li> <li>2. At b position, shift lever from L to M.</li> <li>3. At c position, shift lever from M to R.</li> <li>4. Reverse these steps.</li> <li>5. Repeat the above steps.</li> </ol>	<ol style="list-style-type: none"> <li>1. Move lever slowly and evenly from L to R and back from R to L.</li> <li>2. Repeat this movement.</li> </ol>
SINGLE NEEDLE PATTERN			
TWIN NEEDLE PATTERN			

(b) Manual pattern sewing (Zig-zag width)



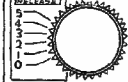




Set your machine as shown in chart







	PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
									
SINGLE NEEDLE	For Zig-zag		M	FINE	See below table	+5.0	As desired	NORM	According to the material
TWIN NEEDLE	For Zig-zag		M	FINE	See below table	2.5	As desired	NORM	According to the material

		E X A M P L E			
HOW TO MOVE THE ZIG-ZAG WIDTH KNOB	NEEDLE POSITION	At even speed from 0 to 5 and from 5 to 0. Repeat this.	Control the speed in moving from 0 to 5 and from 5 to 0. This will produce uniform curves. Repeat this.	Repeat from 2 to 5 and from 5 to 2.	Slowly from 5 to 0 and quickly back to 5. Repeat the movement.
SINGLE NEEDLE PATTERN	L M R				
TWIN NEEDLE PATTERN	L M R				

(c) Manual pattern sewing (Stitch length)

Set your machine as shown in chart

	PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
									
SINGLE NEEDLE	For Zig-zag		M	See below table	As desired	5.0	M	NORM	According to the material
TWIN NEEDLE	For Zig-zag		M	See below table	As desired	2.5	M	NORM	According to the material

	E X A M P L E		
HOW TO MOVE THE STITCH LENGTH LEVER	Fix the length at FINE and sew to a certain length and make two stitches with the length at 1-4. This operation is repeated.	Make two stitches with the length at 1-4, and then make two stitches with the length at 0. This operation is repeated.	Fix the length at FINE and sew to a fixed length and then make one stitch with the length at 1-4. This operation is repeated.
SINGLE NEEDLE PATTERN			
TWIN NEEDLE PATTERN			

## V ATTACHMENTS

### 1. Applications of Straight Stitch Foot or Zig-zag Foot

(a) To baste

※Set stitch length to 4-5.

※Loosen upper thread tension slightly.

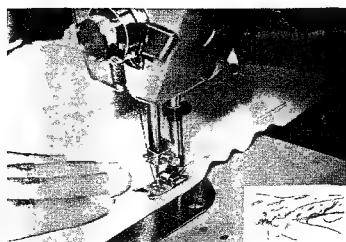
※As the seam is weak, it is very easy to unloosen it, you may use a seam ripper, for loosening to your convenience.

**NOTE :** Be sure to remove pins after temporary sewing is finished.

Set your machine as shown in chart

PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
For Zig-zag or Straight		M	4-5	0	5.0	M	NORM	According to the material

(b) Gathering



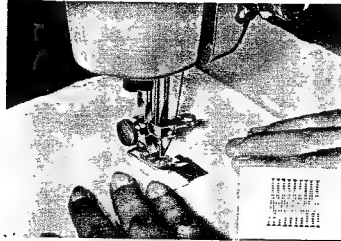
(Fig. 58)

Tighten the tension of the lower thread, make single or multiple rows of straight stitch aparting about 1/10 inch, then pull the the lower thread to gather.

Set your machine as shown in chart

PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
For Zig-zag or Straight		M	As desired	0	5.0	M	NORM	According to the material

(c) Darning



(Fig. 59)

Set your machine as shown in chart

PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
For Zig-zag or Straight		M	0	0		M	DARN	DARN

※Set drop feed and calibrated fabric indicator to DARN.

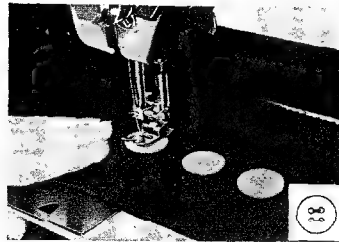
※Place portion to be darned under the presser foot.

※Lower presser foot and start sewing, alternately drawing fabric gently away from you and then gently pulling fabric toward you.  
Continue this forward and backward motion until area to be darned is filled with parallel lines of stitching.



## 2. Zig-zag Foot

(a) Sew on buttons, snaps and hooks



(Fig. 60)

Set your machine as shown in chart

PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
For Zig-zag		M	0 - FINE	0 to 10 distance of holes	5 0	L or R	DARN	according to the material

### (1) Two-hole button

- Control zig-zag width to suit to the distance of the button holes.
- Place material under presser foot.
- Place button between the presser foot and the fabric, with the holes in a horizontal line.
- Turn balance wheel towards you, making sure the needle enters the button hole and lower presser foot.
- Slowly start machine, making 7-11 stitches.
- Stop running when the needle falls on the left in case of L and on the right in case of R.

### (2) Four-hole button

- Proceed the same as for two-hole button for the first two holes.
- Lift presser foot and move material so that the next two holes are in line with the needle.

### (3) Four-hole button cross-stitch

- Proceed the same as for two holes the first two holes, but hold button under presser foot in a cross position.

- Turn material so that the holes in the button will be at right angles to the first two holes.

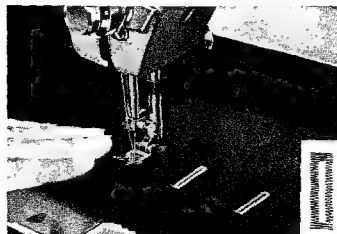
### (4) Sewing on hooks

Set your machine as in the sewing on buttons. Oversee the stem of the hook very near to the holes.

### (5) Sewing on snaps

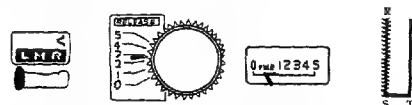
It is made just the same way as in sewing on buttons.

(b) To make button holes

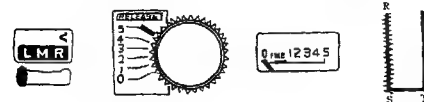


(Fig. 61)

- i. Using tailors chalk, mark buttonhole on the material.
  - ii. Set needle position to L, zig zag width to 2-3, and stitch length to FINE.
- Place material and put needle on R position of the buttonhole. Bring down the presser foot and proceed to stitch from R to S.



- iii. Stop the work when the needle comes to the left side of the row.
- Set zig-zag width to 5 and stitch length to 0. Make 5-6 stitches from S to T and raise needle to its highest position.

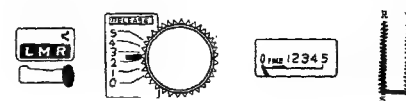


- iv. Set needle position to K and return zig-zag width to 2-3 and stitch length to FINE.

Set your machines as shown in chart

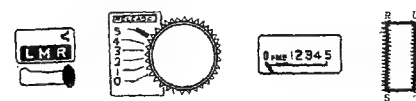
PRESSER FOOT	NEEDLE PLATE	STITCH WIDTH FOR TWIN NEEDLE	PATTERN SELECTOR	DROP FEED	C. FABRIC INDICATOR
For Zig zag		No desired	M	NORM	According to the material

Push reverse button and make return stitches from T to U.



- v. Stop the work when the needle comes to the right side.

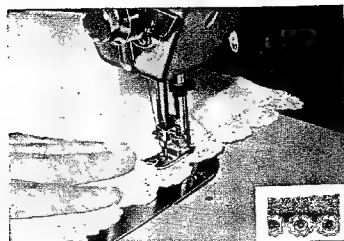
Set zig zag width to 5 and stitch length to 0. Make 5-6 finish stitches from U to R.



- vi. Separate center of seam with the seam ripper. Be sure not to break the seam.

**NOTE:** When the material is soft, use a cord or "grimp" which you place under the foot.

(c) To attach lace



(Fig. 62)

Set your machine as shown in chart

PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
For Zig-zag		M	As desired	According to width of lace	5.0	M	NORM	According to the material

Place the lace on top of the material and let it overlap the edge of the material by 1/4 inch.

Holding it in this position, place the lace and the material under the presser foot.

**NOTE:** The width of the zig-zag should be set depending on the width of the lace, and the stitch length should be set depending on the thickness of the lace. The wider the lace, the wider the zig-zag. The thicker the lace, the closer the stitch length.

(d) Mending

Zig-zag stitching is very useful for mending of rent or tear. Set stitch length and zig-zag width according to need.

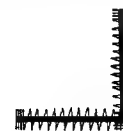
※Place an underlay to the wrong side of the tear for reinforcement

※Following the line of tear, sew edges together.

※Shorten stitch length at ends and corners by turning stitch length lever to the right.



(A) Straight Tear

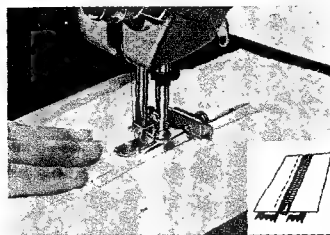


(B) L-Shaped Tear



(C) Hole

### 3. Zipper Foot



(Fig. 63)

Set your machine as shown in chart

PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEET	C. FABRIC INDICATOR
Zipper Foot	For Zipper	M	2-3	0	5.0	M	DOWN	According to the process

※This zipper foot is designed to be adjusted to either the right or left side of the needle.

※When the zipper is to the right of the needle, slide zipper foot to the left of the needle by loosening the thumb screw at the back.

※When the zipper is to the left of the needle, slide zipper foot to the right of the needle.

※Check the position of the foot by lowering the needle into the side notch, making sure it clears the foot.

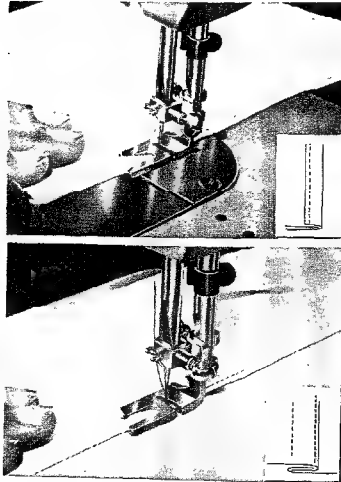
※Lock it into position by tightening the thumb screw.

※Edge of the material for stitching is folded by about  $\frac{3}{4}$  inch.

※Lay it on the cloth of zipper to be fastened and stitch the same way as in straight stitching.

**NOTE:** Set presser foot always to press the cloth only.

#### 4 Felling Foot



(Fig. 64)

Set your machine as shown in chart

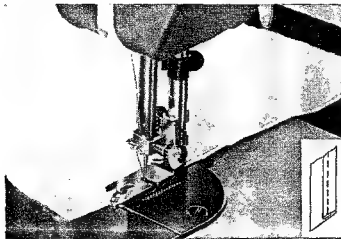
PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
Felling Foot	For Zig-zag	M	2-3	0	5.0	M	NORM	According to the material

- i. Lay material on top of each other so that the "right" side of each piece is inside and the "wrong" side is on the outside. The right edge of the bottom fabric should extend about 1/8 of an inch beyond the edge of the top fabric piece.
- ii. Place the fabric under the foot using the long toe as a guide and sew the full length of the seam. (This stitch is called double hemming stitch.)
- iii. Open material with its "right" side down and you will find that the 1/8 edge stands up.
- iv. Lift presser foot, fold over the edge of the material to the left and insert them into the scroll opening of the foot.
- v. Lower presser foot, start to sew slowly and guide the material evenly.

(Fig. 65)

#### 5 Narrow Hemmer

(a) Narrow hemmer on straight stitch



(Fig. 66)

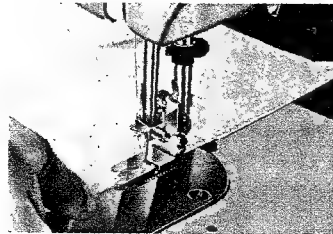
Set your machine as shown in chart

PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
Narrow Hemmer	For Zig-zag	M	2-3	0	5.0	M	NORM	According to the material

※The cloth is put under the narrow hemmer from the left side. Cut-off angle is inserted into the opening of the narrow hemmer. Pull out the material until the needle is touched and put down the presser foot.

※Adjusting properly the hem width, then there will be obtained a hem stitch.

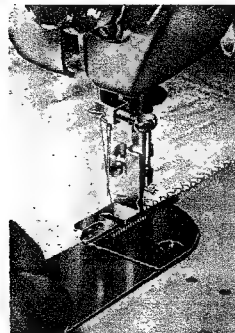
(b) Narrow hemmer on zig-zag stitch



(Fig. 67)

Method of sewing is just the same as in straight stitch.

(c) To make shell stitch



(Fig. 68)

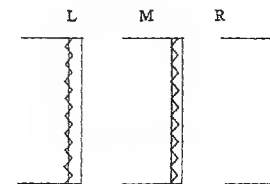
This stitch is especially useful for thin materials such as silk, chiffon and rayon. To make this stitch, proceed as (b). It is advisable to use a wide zig-zag stitch and long stitch length.

Also make sure the upper tension is a little tighter than normal. This will cause the edge to picot and produce the shell stitch.

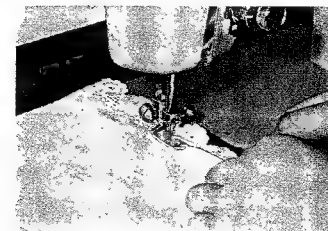
Set your machine as shown in chart

PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
Narrow Hemmer	For Zig-zag	M	2-3	As desired	5.0	As desired	NORM	According to the material

NEEDLE POSITION



(d) To hem lace



(Fig. 69)

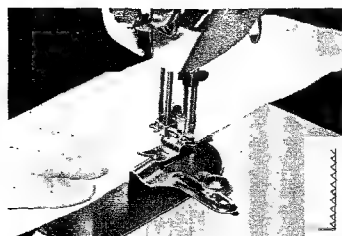
Proceed as (b). Insert the lace in the hemmer foot and guide the lace evenly.

## 5. Cloth Guide

The cloth guide aids to make straight and parallel stitch to the edge of the material.

To attach the cloth guide, place it over two holes to the right of the needle in the bed of the machine. Place the thumb screw through the guide slot, adjusting the guide to the desired distance and fasten it firmly.

(a) To make overlock stitch



(Fig. 70)

(b) To make blind stitched hem



(Fig. 71)

- Fold cloth edges into three allowing bottom edge extending about 1/4 inch.
- Fix cloth guide on the bed to make the needle slightly touch the folded top cloth.
- Stitch the cloth with the lower thread some what loosened in tension. Then spread the cloth and a blind stitch is obtained.

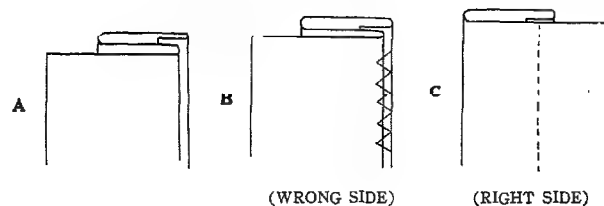
Set your machine as shown in chart

PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
For Zig-zag								
		M	3-4	4-5	5.0	M	NORM	According to the material

Fix the cloth guide to the bed so that the needle stitches the cloth on one side (left) of the zig-zag width and stitches the outer side of the cloth on the other side (right). This stitch is called the edge stitch, hem stitch, or overlock.

Set your machine as shown in chart

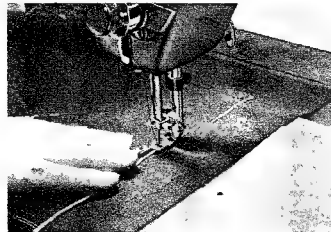
PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
For Zig-zag								
		<	1-2		5.0	R	NORM	According to the material



(WRONG SIDE)

(RIGHT SIDE)

## 7. Cording Foot



(Fig. 72)

Set zig-zag stitch width according to the thickness of the cord being used.  
If a thin cord is used beneath a satin stitch, this will have the effect of raising the satin stitch, giving an embossed effect and the cord will not be visible.

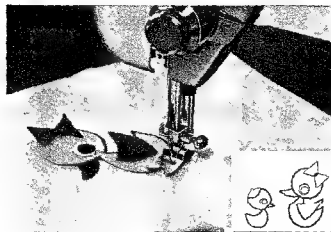
Set your machine as shown in chart

PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
Cording Foot	For Zig-zag	M	As desired	According to the thickness of the cord	5.0	M	NORM	According to the material

Very attractive effects can be achieved by using contrasting color cotton to that of the cord and sewing over the cord with a stitch length of about 1/10 inch, with the width of the zig-zag set according to the thickness of the cord

## 8. Embroidering

### (a) Applique



(Fig. 73)

※Draw the design on the applique material. Cut the material.  
※Place it on the surface of the cloth and stitch the material.  
※To finish stitching, follow the methods as taken in satin stitch, straight stitch and so on.

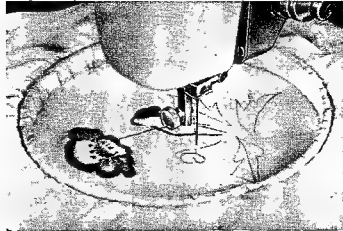
Set your machine as shown in chart

PRESSER FOOT	NEEDLE PLATE	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
For Zig-zag		M	Fine-2	2	5.0	M	NORM	According to the material

※Control the zig-zag width properly as you desire according to the design, material, etc. Upon stitching by satin stitch, you cannot finish it neatly as the applique cloth shrinks. Apply thin paste on the cloth preparation.



(b) Embroidering, using embroidering hoop.



(Fig. 74)

- ※Remove the presser foot.
- ※Set zig zag width to 0 for straight stitch embroidering.
- ※For zig-zag embroidering, set it to width you desire.
- ※Lay the cloth on the outer hoop with the designed side upwards and place the inner hoop on the cloth.
- ※Extend the cloth firmly by use of the adjusting screw of the outer hoop not to make it loose or deformed.
- ※Put the embroidering hoop with the extended cloth under the

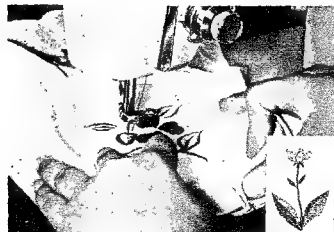
Set your machine as shown in chart

	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
NEEDLE PLATE							
For Zig-zag	M			5.0	M	DAIN	

presser bar.

- ※Hold the hoop with thumb and forefinger of right and left hand while pressing the cloth with middle and third fingers, and supporting the outside of hoop with small finger.
- ※Hold the hoop down to prevent the cloth from floating over the surface of needle plate. Move the hoop lightly according to the outline of design while controlling zig-zag width knob according to the drawing with your right hand.

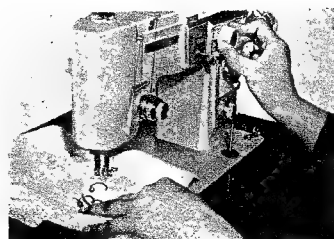
(c) Sand stitch



(Fig. 75)

- ※At a fixed width and according to the outline of design straight or diagonally with satin stitch, move the embroidering hoop according to the design.
- ※Stitch from outside in.
- ※Repeat the work from outside to inside and from inside to outside.

(a) Monogramming



(Fig. 76)

- ※Draw letters on the cloth beforehand.
- ※Controlling zig zag width knob according to the design with your right hand.

Set your machine as shown in chart

	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
NEEDLE PLATE							
For Zig-zag	M	FINE	1-5	5.0	M	DARN	According to the material

- ※Adjust the form always to make the needle foot run uniformly.
- ※Stitch closely without leaving space.

**NOTE:** Upon stitching especially pushed out parts or small parts, move the zig-zag width 0-5 and regulate the required width on the design to sting.

Set your machine as shown in chart

	PATTERN SELECTOR	STITCH LENGTH	STITCH WIDTH	STITCH WIDTH FOR TWIN NEEDLE	NEEDLE POSITION	DROP FEED	C. FABRIC INDICATOR
NEEDLE PLATE							
For Zig-zag	M	FINE		5.0	M	DARN	

- ※Move the hoop along the letters as in the sand stitch.
- ※Stitch so that the seams are made of diagonal lines.

## **V SUGGESTIONS FOR BETTER SEWING**

(A) If material is not fed

※The drop feed must not be set to DARN.

※Is the needle plate in right position?

※Is the presser power proper?

※Is the stop motion knob tightened?

※Isn't the stitch length must be set above 0.

(B) If needle breaks

※Is the needle correctly inserted and securely tightened in the needle clamp?

※Is the machine properly threaded?

※Is the needle straight and sharp?

※Are needle, thread and cloth in right relation?

※Is the thread suitable for the size of needle?

※Is the needle thread tension too tight?

(C) If upper thread breaks

※Is the machine properly threaded?

※Is the thread suitable for the size of needle?

※Is the upper thread tension too tight?

※Is the needle hole smooth?

※Is the needle straight and sharp?

(D) If bobbin thread breaks

※Is the bobbin thread entangled on the shuttle race?

※Is the bobbin tension too tight?

※Is the passing of thread in bobbin case tight?

(E) If machine skips stitches

※Is the needle straight and sharp?

※Is the thread suitable for the size of needle?

※Are needle, thread and material in proper relation?

※Is the passing of thread right?

※Is the presser power proper?

(F) If material becomes creasy

※Are thread tensions too tight?

※Is the bobbin thread wound uniformly?

※Is the passing of thread right?

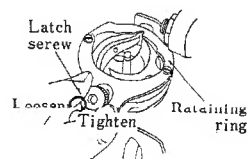
※Is the thread hanging or hitting on unnecessary parts?

## VI MAINTENANCE AND OILING OF MACHINE

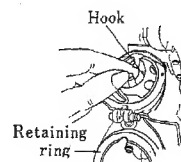
### 1. Cleaning

The sliding parts of the shuttle race body and the hook must be clean always so that lint does not accumulate.

(a) To take out the hook



(Fig. 77)



(Fig. 78)

※Raise needle to its highest position by turning balance wheel toward you.

※Push the head away from you.

※Take out bobbin case.

※Turn latch screw to the left.

※Loosen spring and open the retaining ring. (The retaining ring will open without taking out the latch screw)

※The hook can be taken out very easily.

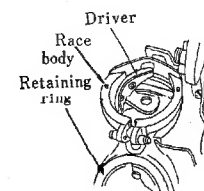
**NOTE:** When needle is lowered down, the hook cannot be taken out.

(b) Cleaning of shuttle race body

※Remove accumulated lint and thread from the retaining ring, hook, driver and race body with brush.

※Wipe them cleanly with cloth imbued slightly with machine oil.

※The hook, too, may be cleaned in the same way.



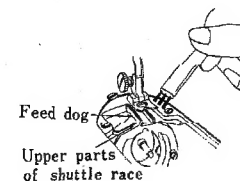
(Fig. 79)

For assembling the parts, follow the same order in reverse.

(c) Cleaning of feed dog

※Take out needle plate.

※Clean upper part of feed dog and shuttle race body with brush.



(Fig. 80)

## 2. Oiling

Moving parts of the machine, if always oiled well, do not wear out. Noise is minimized during the working of the machine.

OIL ONCE A WEEK IF THE MACHINE IS USED FOR ONE HOUR A DAY.

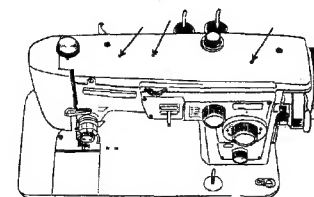
OIL EVERY DAY IF THE MACHINE IS USED FOR MANY HOURS A DAY.

If the machine is not used for a long time, oil will coagulate and the rotation of the machine becomes heavy.

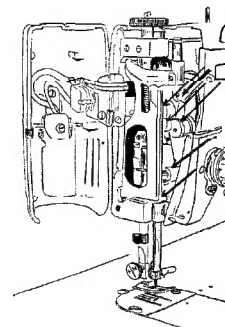
Apply a small amount of benzine to oiling points. Run the machine fast (without thread and with the presser foot up) and wipe the machine.

After wiping it cleanly, apply machine oil to all points marked by arrows.

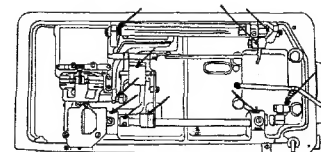
Make sure excess oil is wiped off completely to avoid oil stain. Sew on waste cloth before work.



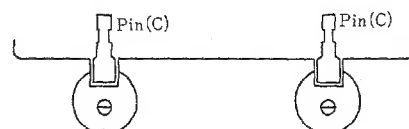
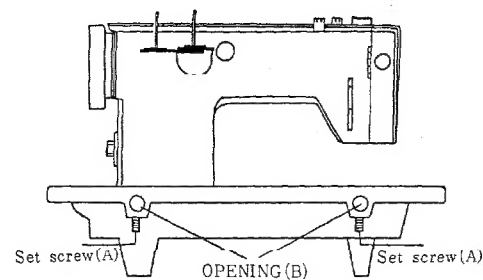
(Fig. 81)



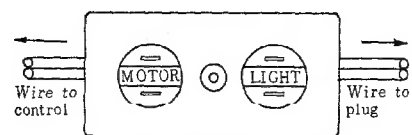
(Fig. 82)



(Fig. 83)



CABINET OR CASE BASE



# INSTRUCTIONS

## TO PUT SEWING MACHINE HEAD INTO CONSOLE CABINET OR PORTABLE CASE

1. Insert pins (C) located in the back of the cabinet or base of portable case into openings (B) at the back end of sewing machine.
2. Tighten set screws (A).
3. Insert electric plug leading from sewing machine motor into outlet marked "Motor".
4. Insert electric plug from sewing machine light into outlet marked "Light".

### 5. IMPORTANT

To ensure that proper installation has taken place, carefully lower the machine head into inside of console. If machine has a tendency to slip off pins, recheck step "2".